

REMARKS

I. Status of the Claims

Claims 1-5 were pending at the time the Office Action dated January 6, 2010 ("the Action"), was mailed. Claims 1 and 2 are each amended herein to recite the subject matter of Claim 3, and Claim 3 is canceled. Claims 1 and 2 are also amended to recite, "the oxidation with TEMPO is conducted in a weakly basic system which is a mixed solution of sodium bromide and sodium hypochlorite in water." Support for this amendment may be found in the specification as originally-filed. See, e.g., page 10, lines 1-3. Claims 4 and 5 are also canceled. Amended Claims 1 and 2 are therefore pending.

II. Examiner Interview

On June 11, 2010, Examiner Wright and applicants' representative, Tamara Kale, held a teleconference to discuss proposed claim amendments. Applicants generally agree with Examiner Wright's Interview Summary dated June 18, 2010. Applicants further note that the claim amendments presented herein are identical to the claim amendments discussed in the interview. In the interview, Examiner Wright indicated that she believed these claims appeared to put the case in condition for allowance, although she could not guarantee allowance at the time of the interview.

III. The Objection to Claim 3 Is Overcome

Claim 3 was objected to regarding the recitation of the term "TEMPO." Claim 3 is canceled herein, and applicants submit that use of this term in amended Claims 1 and 2 is grammatically appropriate. Reconsideration of the objection is respectfully requested.

IV. The Anticipation Rejections of Claims 1, 2, 4, and 5 Are Overcome

Three separate anticipation rejections are issued regarding Claims 1, 2, 4, and 5. Claim 3 is not included in any of these rejections. As noted above, the subject matter of Claim 3 has been

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included in amended Claims 1 and 2, and Claim 3 is canceled. Applicants respectfully submit that the anticipation rejections are therefore overcome and withdrawal of the rejections is requested.

V. The Obviousness Rejection of Claim 3 Is Overcome

Claim 3 is rejected as obvious over Watanabe (*J. Artificial Organs*, 3:136 (2000)) in view of de Nooy (*Tetrahedron*, 51:8023 (1995)). The Examiner contends that Watanabe teaches each element of the claims except for the use of TEMPO for oxidation. It is further asserted that de Nooy teaches this element, and that it would be obvious for a skilled artisan to employ TEMPO as taught by de Nooy in the method of Watanabe because de Nooy's method employs mild conditions and is applicable to a variety of alcoholic substrates. Action, page 6. Applicants respectfully disagree because there is a lack of a reasonable expectation of success regarding the asserted combination of Watanabe and de Nooy. As such, no prima facie case of obviousness has been established. Further, even if a prima facie case of obviousness has been shown, which applicants do not concede, evidence of commercial success associated with the claimed invention counters any such showing. These reasons are discussed more fully below.

While Claim 3 is canceled, the subject matter of Claim 3 is recited in amended Claims 1 and 2, as discussed above. Thus, the following comments pertain to amended Claims 1 and 2.

Applicants note that de Nooy does not disclose use of TEMPO for oxidation of polyethylene glycol (PEG), as presently claimed. In fact, de Nooy employs TEMPO only in the context of small molecular weight compounds, such as butanal, butanol, cyclohexanol, 3-methylcyclohexanol, and methyl α -D-glucopyranoside. See de Nooy, page 8028, Table 1. In contrast, the claimed invention utilizes TEMPO to oxidize a large molecular weight compound: PEG. See, e.g., Specification, page 3, lines 21-24; page 6, lines 1-4, and Examples 1 and 2. This difference is significant because one would expect large molecular weight compounds to be

broken down using TEMPO, but the presently claimed invention results in a polyrotaxane including PEG and a chemically stable linkage, as explained in the Specification. See, e.g., page 3, lines 7-24, and page 6, lines 1-4. Dr. Kohzo Ito, an inventor of the presently claimed invention, confirms this fact in a declaration submitted with this Response. Ito Declaration, pages 2-3. Accordingly, a prima facie case of obviousness has not been established due to a lack of a reasonable expectation of success in this regard. See M.P.E.P. § 2143.02 ("Evidence showing there was no reasonable expectation of success may support a conclusion of nonobviousness."). Applicants also note that benefits associated with the claimed invention described on pages 7-8 of the specification are not disclosed or suggested by Watanabe or de Nooy, viewed together or separately. Ito Declaration, pages 3-4.

Should the Examiner maintain that a prima facie case of obviousness has been established, applicants also supply objective evidence of commercial success associated with the claimed invention. Evidence of such a secondary consideration is probative of the non-obviousness of the claims. See M.P.E.P. § 2141 (secondary considerations of non-obviousness include evidence of commercial success). In particular, Dr. Ito explains that the present application has been licensed to ASM (Advanced Softmaterials Inc.), a company located in Tokyo, Japan. Ito Declaration, page 4. Issued Japanese Patent No. 4461252, which recites claims that are the same as amended Claims 1 and 2, has also been licensed to ASM. Ito Declaration, page 4. ASM has sub-contracted with a chemical company and this chemical company has produced 1,000 kg or more of polyrotaxane made by the presently claimed method. Ito Declaration, page 4. The polyrotaxane made by the claimed method may then be used to prepare a cross-linked polyrotaxane that is used to coat the exterior of mobile phones. Ito Declaration, pages 4-6. The coating has been developed by ASM together with Nissan Motor Co., Ltd., and the assignee of the present application, The University of Tokyo. Ito Declaration,

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page 5. A mobile phone presently sold by NTT Docomo, Inc. employs this coating (called "Scratch Shield"). Ito Declaration, page 5. Appendices 1-4 of Dr. Ito's Declaration are advertisements that describe the mobile phone and benefits of the Scratch Shield, such as resisting peeling, flaws, or other marks and providing improved toughness. Ito Declaration, page 5. U.S. Published Application Nos. 2009/0281213 and 2009/0042034 describe coating materials produced from the polyrotaxane of the presently claimed invention. Ito Declaration, page 5. The patentability of the present claims is supported in view of this evidence of commercial success.

For at least the foregoing reasons, amended Claims 1 and 2 are not obvious in view of Watanabe and de Nooy. Withdrawal of the rejection is therefore respectfully requested.

CONCLUSION

Applicants believe that Claims 1 and 2 are in condition for allowance. If any issues remain that may be expeditiously addressed in a telephone interview, the Examiner is encouraged to telephone applicants' attorney at 206.695.1649.

Respectfully submitted,

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